

MYP moderation report

School Victoria Shanghai Academy

Subject: MATHEMATICS **Level:** MY **Component:** INTERNAL ASSESSMENT

June 2013 - This report should be read in conjunction with the general report for this subject.

Section A General Comments

How was the sample submitted?*

Electronically via school's own site

Was the correct number of student folders submitted?*

Yes

Was there a separate background information folder?*

Yes

Was the moderation checklist included? *

Yes

Was the correct distribution of comparatively good, average and weak student work included in the sample?*

Yes

Were the prescribed minimum tasks included? *

Yes

Were the F3.1 forms completed correctly?*

Yes

Was the correct number of judgments given against each criterion? *

Yes

Were the same tasks included for all students?*

Yes

Were unit planners included? *

Yes

Was the previous year's report included/available to view? *

Yes

Did the teacher authenticate the student work?*

Yes

Was the sample easy to follow?*

Yes

Had recommendations from the previous report been followed?*

Yes all

Section B Assessment tasks

Task 1 (Please insert title)

Broad-based Test

Brief description of the task

This broad-based test (semester examination) assessed Knowledge and Understanding from the following three branches of mathematics: Algebra, Statistics and Probability and Geometry and Trigonometry. Students were given 90 minutes to complete eight questions. Students were allowed to use scientific calculators. The test was divided into four sections A, B, C and D corresponding to the four bands of criterion A. Section D comprised two questions, 7 and 8, that were indicated by the teacher as challenging, unfamiliar level 7-8 questions.

The task assessed criteria A and C.

Comments on the application of the assessment criteria and any change of levels

The moderation team felt that not all of question 8 was sufficiently challenging or unfamiliar to be designated as level 7-8. Parts (a) and (b) were straightforward calculations on the distance between two known points and the equation of the straight line through them. The unit planner indicated that this material would have been familiar to students. For this reason parts (a) and (b) would better have been indicated as level 5-6 questions. It is recommended that with long questions such as this one, each of the parts (a), (b), (c) and (d) is designated its own level on criterion A.

The moderation team felt that the distribution of questions over the three branches of mathematics covered by the test was somewhat uneven. There was only one Algebra question (level 1-2), one Statistics question (level 1-2) and one Probability question (level 3-4). The remainder of the paper (5 questions) was made up entirely of questions on Geometry and Trigonometry.

The moderation team agreed with all the levels awarded by the teacher.

Task 2 (Please insert title)

Real life problem - The Bench

Brief description of the task

In this task students were required to design a water front bench with a canopy to keep off the sun and rain. They were required to use a variety of functions to define the shapes of the different components of the bench. The use of simple, linear functions would allow students to achieve only the lowest levels on criterion A; more complex functions such as quadratic and sinusoidal functions would allow students to achieve higher levels on criterion A and, as indicated in the task sheet, in order to achieve level 7-8 on criterion A, an unfamiliar function (i.e. one that had not been introduced to them during class time) would need to be used in their design.

Students also reflected upon their design, commenting upon accuracy, connection to real life and possible improvements to their methods in order to achieve all levels of criterion D. Students were given from early September to mid-October to complete the task. Some was done in class and some for homework. Students were allowed to use any of a number of software packages such as GeoGebra and Autograph.

This task was assessed against criteria A, C, and D.

Comments on the application of the assessment criteria and any change of levels

This task was entirely suitable for assessment against criteria A, C and D.

The moderation team modified levels awarded by the teacher as follows:

Michael Budiharjo's criterion D level was lowered from level 6 to level 5 because his discussion of accuracy was very superficial.

Marvin's level on criterion A was lowered from level 7 to level 6 because his treatment of the unfamiliar circular function reflected a limited and rather confused understanding of such functions; his level on criterion C was lowered from level 4 to level 2 because his use of mathematical language was also confused and his lines of reasoning were difficult to follow and his level on criterion D was lowered from level 4 to level 2 because his report contained no meaningful reflection.

Ryan's level on criterion C was lowered from level 5 to level 4 because his lines of reasoning, although usually

clear, were not always logical or complete and he moved between different forms of representation only with some success; his level on criterion D was lowered from level 3 to level 2 because his report contained no meaningful reflection.

Josephine's level on criterion D was lowered from level 3 to level 2 because she only attempted to explain the importance of her findings in connection to real life.

Task 3 (Please insert title)

Real Life Problem - The Company Report

Brief description of the task

In this task students were required to create a report on a public company of their own choice and decide whether it is worth buying. They needed to analyse three attributes of the company such as dividends, book value, earnings and sales. One of these three should be modelled as an arithmetic sequence, one should be modelled as a geometric sequence, and one should be modelled as an unfamiliar function.

This task was assessed against all four criteria A, B, C and D; only criteria B and D were offered for moderation.

Comments on the application of the assessment criteria and any change of levels

This task was suitable for assessment against criteria B and D.

In relation to the task and its assessment against criterion B, the moderation team would like to draw attention to the following: allowing students to choose their own data creates the potential for considerable difficulty in terms of modelling the data in the way suggested in the task sheet. The moderation team felt that all of the students struggled in just this way because they were trying to model their data in a way that was not natural. It is recommended that, in future, the teacher provides the data and ensures that it can be modelled easily. It is also recommended that, in order to allow students to select and apply their own mathematical problem-solving techniques to recognize the patterns in the data, the task sheet does not direct them to use linear, exponential, quadratic or sinusoidal functions.

In addition, it was felt that the complicated nature of the task (assessing both criteria A and B) resulted in a lack of clarity for students so that, for instance Christy focused almost all of her attention on just her first set of data (criterion A) and failed to address the requirements of criterion B.

According to the task sheet the assessment of criterion B was in relation to only the third set of data chosen by students in their report.

The moderation team modified the levels awarded by the teacher as follows:

Michael's level on criterion B was lowered from level 8 to level 3 because, whilst he was able to organise his data in a table and calculate some differences, he was not able to comment on any pattern; his level on criterion D was lowered from level 5 to level 4 because he described only briefly the importance of his findings in connection to real life.

Marvin's level on criterion B was lowered from level 5 to level 3 because, whilst he was able to organise his data in a table and produce some graphs, he was not able to comment on any pattern.

Ryan's level on criterion B was lowered from level 5 to level 3 because, whilst he was able to organise his data in a table and produce some graphs, he was not able to comment on any pattern; his level on criterion D was lowered from level 5 to level 3 because his explanation of the importance of his findings in connection to real life was rather superficial.

Christy's level on criterion B was lowered from level 7 to level 2 because most of her calculations relating to her third set of data were incorrect and she was only able to produce a bar chart to illustrate her data; her level on criterion D was lowered from level 4 to level 2 because she made only a brief attempt to explain the importance of her findings in connection to real life.

Josephine's level on criterion D was lowered from level 3 to level 2 because she made only a brief attempt to explain the importance of her findings in connection to real life.

Task 4 (Please insert title)

Investigation under Test Conditions - A Trigonometric Identity

Brief description of the task

This task was completed in class under test conditions over a double class period. Students were required to investigate patterns found when comparing values of $\sin x$, $\cos x$, $\sin 2x$, $\cos 2x$, $(\sin x)^2$ and $(\cos x)^2$.

This task was assessed against criterion B.

Comments on the application of the assessment criteria and any change of levels

This task was suitable for assessment against criterion B but the moderation team would like to make the following suggestions so that the task might be modified in a way that would allow students more easily to achieve the highest levels 7-8 of that criterion. In order to achieve level 5-6 on criterion B students need to select and apply the mathematical problem-solving techniques used to recognize patterns. This would be made easier if suggested values for the angle x (as provided in Question 1) were NOT given. It was felt that it was unrealistic to expect students to alight upon any of the identities for $\cos 2x$ without either prior knowledge or a level of direction from the teacher that would make the task too guided. These identities are not at all obvious. Even the identity for $\sin 2x$ was not found by any of the students in the sample. In fact, the student work in the sample indicated largely that they found this task to be very difficult, so it is recommended that modifications be made to make it more accessible to students at this level.

The moderation team modified the levels awarded by the teacher as follows:

Michael's and Marvin's levels on criterion B were lowered from level 6 and level 5 (respectively) to level 4 because they were able to enter values into a table but were not able to correctly identify any pattern.

Did the design of the task(s) allow students to reach the highest levels of the criteria?

Yes - completely

Was the background information adequate?

Yes - Thankyou

Section C - Points that should be addressed for future samples in order to comply with moderation requirements

Are there any points that must be addressed for future samples in order to comply with moderation requirements?

Yes - please see points below

Points

Marvin and Ryan produced Company Reports (Task 3) that were very similar in appearance, presentation and format. The moderation team did not feel that there was a problem in terms of academic honesty because the mathematical content of their reports indicated that each had completed his own work. In addition, the moderation checklist indicated that authenticity had been checked by the teacher. The moderation team would recommend, however, that similarity of this nature is discouraged as these students progress on to the Diploma Programme in the future.

Tasks that assess criterion B should allow students to select and apply their own mathematical problem solving techniques to recognize patterns. They should then have the opportunity to describe these patterns as a relationship or general rule, draw the correct conclusions consistent with the correct findings and provide a justification or a proof.

Are there any suggestions that the school might wish to consider?

No - Thank you for your time

The moderation team thanks you for submitting the sample and hopes that the report will be of assistance during the next academic year.